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REMARKS/ARGUMENTS

Claims 20-32 are pending in this Application.

Claims 20, 21, 23-26, 28-30, and 32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakazawa et al. (US Patent No. 5,948,200) in view of Funami et al. (US Patent No. 5,055,653). Claims 20, 21, 23-26, 28-30, and 32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakazawa et al. in view of JP 10-034365 and in further view of Funami et al. Claims 22, 27, and 31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakazawa et al. in view of Funami et al. and in further view of Derwent 1988-159505. Claims 22, 27, and 31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nakazawa et al. in view of JP 10-034365 and further in view of Funami et al. and Derwent 1988-159505. Applicants respectfully traverse the rejections of claims 20-32.

Claim 20 recites:

"A method for processing a ceramic green sheet to form a plurality of through holes in the ceramic green sheet, comprising the steps of:

(a) disposing a laser source for emitting a pulsed laser beam, a **diffraction grating for splitting the laser beam into a plurality of laser beam components in the vicinity of the laser source**, a galvano-scan mirror that reflects the laser beam components at a reflection angle, a converging lens that individually converges the laser beam components reflected by the galvano-scan mirror, and the ceramic green sheet, in a predetermined positional relationship;

(b) **splitting the pulsed laser beam emitted from the laser source through the diffraction grating into the plurality of laser beam components**;

(c) **reflecting the plurality of laser beam components with the galvano-scan mirror toward the ceramic green sheet such that a plurality of through holes is simultaneously formed at predetermined locations of the ceramic green sheet**;

(d) varying the reflection angle of the galvano-scan mirror to repeat said step (c) until the through holes are formed in an entire region that can be processed by such a variation of the reflection angle in the ceramic green sheet;

(e) shifting the ceramic green sheet by a predetermined distance and repeating said steps (c) and (d); and

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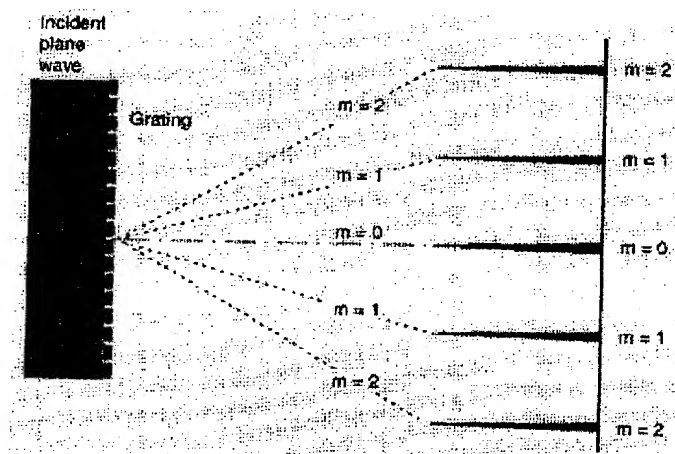
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(f) repeating said step (e) until the through holes are formed at all predetermined locations of the ceramic green sheet." (emphasis added)

Applicants' claim 20 recites the features of "a diffraction grating for splitting the laser beam into a plurality of laser beam components in the vicinity of the laser source" and "splitting the pulsed laser beam emitted from the laser source through the diffraction grating into the plurality of laser beam components." Applicants' claims 25 and 29 recite features which are similar to features recited in Applicants' claim 20, including the above emphasized features. With the improved features of claims 20, 25, and 29, Applicants have been able to provide an effective method for processing a ceramic green sheet to have a plurality of through holes (see, for example, the last full paragraph on page 7 of the originally filed Specification).

First, the Examiner has alleged that mask 8 of Nakazawa et al. teaches the feature of a diffraction grating. Applicants cannot disagree more strongly. A diffraction grating splits the incident laser beam into multiple laser beams as illustrated below:



Lines 47-51 of column 16 of Nakazawa et al. state that "[a]s shown by the dot-dash line in [FIG. 32], the laser beam LB irradiated to the mask 33 has a diameter larger than the light transmitting portion 33a and only the laser beam LB having passed through the light transmitting portion 33a is incident on the lens 34. That is, the mask 8 of

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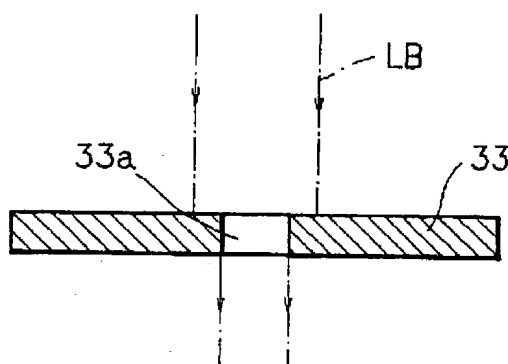
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Nakazawa et al. is clearly used to shape the incident laser beam to form a single laser beam as shown in Fig. 32 of Nakazawa et al., reproduced below:

FIG. 32



The Examiner has alleged in the paragraph bridging pages 2 and 3 of the outstanding Office Action that "in view of Applicants' remarks on page 3 of the amendment filed June 6, 2002 (Paper No. 12) that a 'diffraction grating uses a large number of parallel closely spaced slits which provides a plurality of output light beams' said transparent mask (8) Nakazawa et al. ('200) is a 'diffraction grating.'"

The Examiner relies upon lines 31-34 of column 7 of Nakazawa et al. which discloses that "[i]f a plurality of holes are formed in the mask 8 and a plurality of laser beams simultaneously irradiate the magnetic green sheet, the period of time needed to form the through holes is reduced." The Examiner concluded in the first paragraph on page 9 of the outstanding Office Action that "it is submitted that if a plurality of holes exist in the mask then the mask functions as a beam splitter because a plurality of beams is obtained as explicitly taught by Nakazawa et al. ('200)."

Applicants respectfully submit that there is absolutely no indication in lines 31-34 of column 7 of Nakazawa et al. that the laser beam is split. Lines 31-34 of column 7 of Nakazawa et al. only disclose that (a) there are multiple holes in the mask 8 and (b)

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there are a plurality of laser beams simultaneously irradiating the magnetic green sheet
5. The fact that there are a plurality of laser beams is explained by having a plurality of laser oscillators 7.

Assuming *arguendo* that Nakazawa et al. teaches or suggest a beam splitter, the Examiner is reminded that Applicants' invention must be considered "as a whole". Medtronic, Inc., v. Cardiac Pacemakers, Inc., 220 USPQ 97, 99-100 (Fed. Cir. 1983). Rather than considering Applicants' invention "as a whole," the Examiner improperly reduced Applicant's claimed "diffraction grating" to the "idea" of using a "beam splitter." Reducing a claimed invention to an "idea" and then determining patentability of that "idea" is error. Jones v. Hardy, 220 USPQ 1021, 1024 (Fed. Cir. 1984).

Further, the Examiner is reminded that prior art rejections must be based on evidence. Graham v. John Deere Co., 383 U.S. 117 (1966). The Examiner is hereby requested to cite a reference in support of his position that it was well known at the time of Applicants' invention to use a mask having multiple holes as a diffraction grating. If the rejection is based on facts within the personal knowledge of the Examiner, the data should be supported as specifically as possible and the rejection must be supported by an affidavit from the Examiner, which would be subject to contradiction or explanation by affidavit of Applicants or other persons. See 37 C.F.R. § 1.104(d)(2).

Thus, Applicants respectfully submit that Nakazawa et al. clearly fails to teach or suggest the feature "a diffraction grating for splitting the laser beam into a plurality of laser beam components in the vicinity of the laser source" as recited in Applicants' claims 20, 25, and 29, and certainly fails to teach or suggest the step of "splitting the pulsed laser beam emitted from the laser source through the diffraction grating into the plurality of laser beam components" as recited in Applicants' claims 20, 25, and 29.

Second, the Examiner has relied upon Funami et al. to allegedly cure various deficiencies in Nakazawa et al.

However, Funami et al. clearly fails to teach or suggest the feature of "a diffraction grating for splitting the laser beam into a plurality of laser beam components

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in the vicinity of the laser source" as recited in Applicants' claims 20, 25, and 29 and, certainly, fails to teach or suggest the step of "splitting the pulsed laser beam emitted from the laser source through the diffraction grating into the plurality of laser beam components" as recited in Applicants' claims 20, 25, and 29.

Therefore, the Examiner has failed to establish a *prima facie* case of obviousness of the claimed invention because all of the claimed features must be taught or suggested by the prior art. See *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974) and MPEP § 706.02(j) and § 2143.03.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 20, 25, and 29 under 35 U.S.C. § 103(a) as being unpatentable over Nakazawa et al. in view of Funami et al.

The Examiner has relied upon JP 10-034365 to allegedly teach the feature of a diffraction grating.

First, Applicants hereby request that the Examiner provide an English language translation of JP 10-034365 "so that the record is clear as to the precise facts the examiner is relying upon." MPEP § 706.02, "Reliance upon Abstracts and Foreign Language Documents in Support of a Rejection;" See also *Ex parte Jones*, 62 USPQ2d 1206, 1208 (Bd. Pat. App. & Inter. 2001).

Second, the Examiner alleged in the paragraph bridging pages 5 and 6 in the outstanding Office Action that the phase grating 9 of JP 10-034365 teaches the diffraction grating recited in Applicants' claims 20, 25, and 29. However, the Examiner has failed to explain how a phase grating can be considered a diffraction grating. The Examiner is hereby requested to cite a reference in support of his position that it was well-known at the time of Applicants' invention to use a phase grating as a diffraction grating. If the rejection is based on facts within the personal knowledge of the Examiner, the data should be supported as specifically as possible and the rejection must be supported by an affidavit from the Examiner, which would be subject to contradiction or explanation by affidavit of Applicants or other persons. See 37 C.F.R. §

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1.104(d)(2).

Third, the Examiner alleged in the paragraph bridging pages 5 and 6 of the outstanding Office Action that "it would have been obvious for one of ordinary skill in the art to have provided a phase grating (diffraction grating) as taught by JP 10-34365 in the process of Nakazawa *et al.* ('200) because Nakazawa *et al.* teaches the use of a beam splitter to obtain multiple beams ('200), whereas JP 10-34365 specifically teaches that a phase grating is preferable for splitting a laser beam."

Applicants believe that the Examiner is relying upon lines 31-34 of column 7 of Nakazawa *et al.*, which discloses that "[i]f a plurality of holes are formed in the mask 8 and a plurality of laser beams simultaneously irradiate the magnetic green sheet," to support this allegation. However, as argued above, Applicants respectfully submit that lines 31-34 of column 7 of Nakazawa *et al.* clearly fail to teach or suggest splitting a laser beam.

Further, the Examiner is reminded that he must identify where the prior art provides a motivation or suggestion to combine the prior art references. See In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). Thus, Applicants respectfully request that the Examiner identify where JP 10-34365 specifically teaches that a phase grating is preferable for splitting a laser beam.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 20, 25, and 29 under 35 U.S.C. § 103(a) as being unpatentable over Nakazawa *et al.* in view of and in further view of Funami *et al.*

The Examiner has relied upon Derwent 1988-159505 to allegedly cure various deficiencies in Nakazawa *et al.*, JP 10-034365, and Funami *et al.* However, Derwent 1988-159505 clearly fails to teach or suggest the features of "a diffraction grating for splitting the laser beam into a plurality of laser beam components in the vicinity of the laser source" and "splitting the pulsed laser beam emitted from the laser source through the diffraction grating into the plurality of laser beam components" as recited in Applicants' claimed invention.

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Accordingly, Applicants respectfully submit that none of the prior art of record, applied alone or in combination, teaches or suggests the unique combination and arrangement of elements recited in claims 20, 25, and 29 of the present application. Claims 21-24 depend upon claim 20 and are therefore allowable for at least the reasons that claim 20 is allowable. Claims 26-28 depend upon claim 25 and are therefore allowable for at least the reasons that claim 25 is allowable. Claims 30-32 depend upon claim 29 and are therefore allowable for at least the reasons that claim 29 is allowable.

In view of the foregoing remarks, Applicants respectfully submit that this application is in condition for allowance. Favorable consideration and prompt allowance are solicited.

The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

Date: March 8, 2004


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